

KAWAI

MIDI CONTROLLER KEYBOARD
M8000
OWNER'S MANUAL



INTRODUCTION

Thank you for purchasing the Kawai M8000 MIDI Controller Keyboard. This Owner's Manual contains valuable information to help you get the most from your new instrument. We recommend that you read it carefully and keep it handy for future reference.

FEATURES

The M8000 is a versatile, state-of-the-art MIDI controller with 88 piano-like weighted keys.

The M8000 can transmit MIDI data through four separate outputs simultaneously. The M8000, itself, contains no synthesizer or sound-generating device. You'll have to connect slave synthesizers to its MIDI OUT ports to generate sound.

Each of the M8000's four separate MIDI OUTs can have its own MIDI parameter settings, including program number, transpose, velocity and pressure sensitivity and a host of other parameters.

You can edit the parameters of each of the four MIDI OUTs and save the edited settings as presets for later recall. The M8000 has 99 available presets. You can also save and load data to and from a memory cartridge (RC-16).

The M8000's Link feature allows you to setup a predetermined order of presets. Later, in live performance, you can jump quickly from one preset to another, instantly changing all the parameter settings at once. Linking makes the M8000 a powerful performance tool.

You can connect drum machines and sequencers to the M8000 and use it to start and stop them, and control their tempo and song selects.

The M8000 has a number of real-time performance controls, including master volume and individual MIDI bus volume sliders, velocity and pressure sensitivity sliders, and pitch bend and modulation wheels.

The M8000's foot controller, pedal, and foot switch inputs may be programmed to perform a wide variety of MIDI control functions.

2. CAUTIONS AND MAINTENANCE

For proper care, protect your M8000 from:

Direct sunlight and exposure to the elements
Temperature and humidity extremes
Unstable or "noisy" AC power
Dust
Vibration during transport

POWER SUPPLY

Use the proper power source for your unit.
Make sure that all power switches are off before changing equipment connections.

CLEANING

Use a dry, soft cloth to clean the M8000.
Never use harsh or abrasive cleansers or organic solvents.

HELPFUL HINTS

BATTERY BACKUP

The lithium battery protecting the memory contents while the power supply is off is good for more than five years of normal use. We recommend, however, that you have your nearest authorized service representative replace it promptly after five years have passed.

LINE NOISE RESET

The M8000 is a precision instrument using high-speed microprocessors. Line noise or sudden voltage changes can "lockup" the instrument. In the unlikely event of a "lockup" due to line interference, simply turn the M8000 off for a few seconds and then reapply the power.

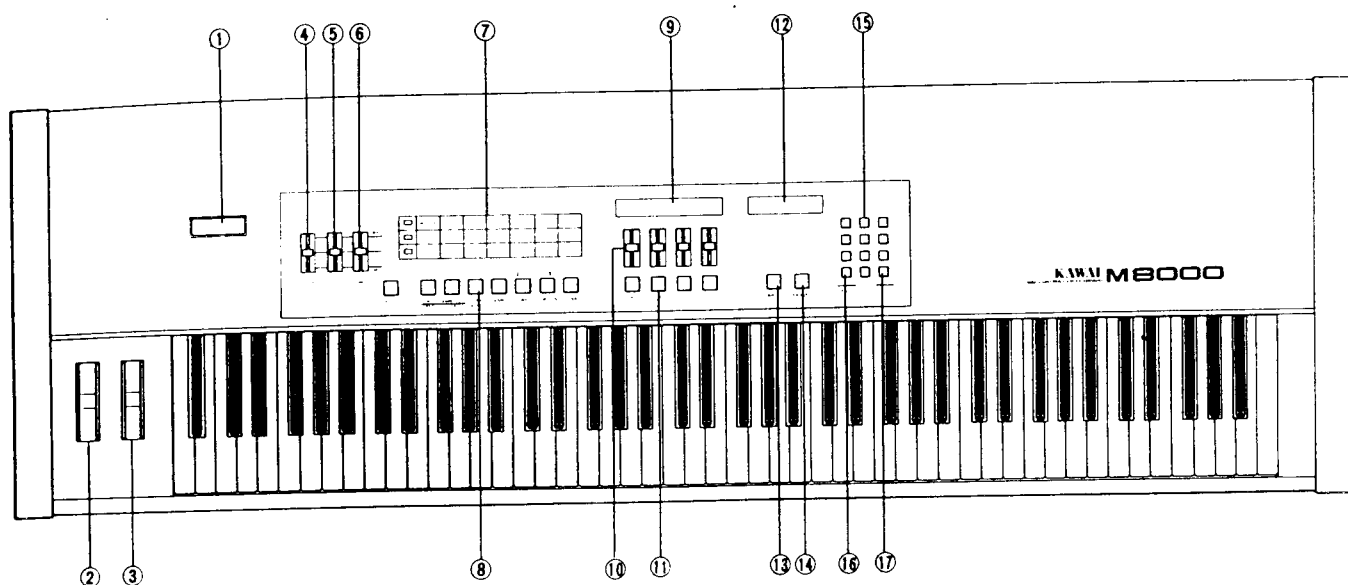
REPAIRS

Always save all data on a cartridge before you take the M8000 in for repair. Authorized Kawai service representatives will try to maintain your data, but in some cases, it may be lost during testing.

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4. FRONT PANEL



1. CARTRIDGE SLOT

MASTER CONTROL SECTION

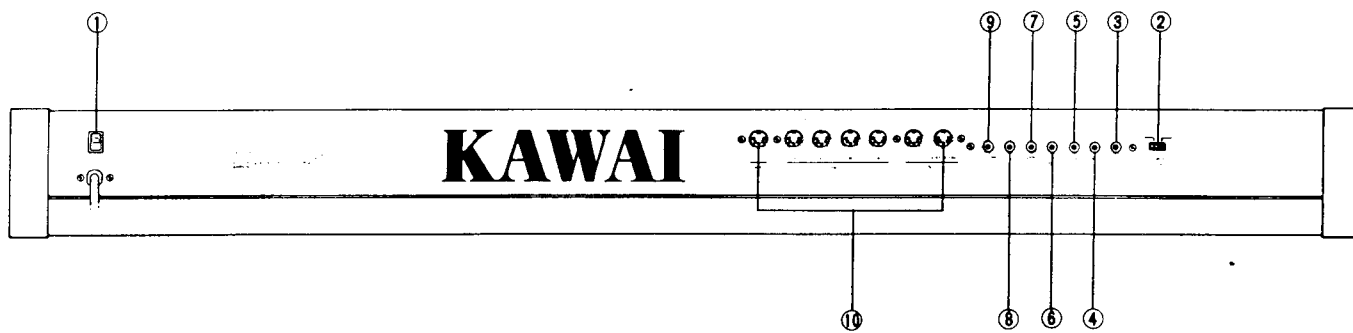
- 2. PITCH BEND WHEEL
- 3. MODULATION WHEEL
- 4. MASTER VOLUME
- 5. VELOCITY SENSITIVITY
- 6. PRESSURE SENSITIVITY

- 7. PARAMETER TABLE
- 8. PERFORMANCE SECTION / PARAMETER SELECTOR
- 9. PARAMETER DISPLAY

GROUP CONTROL SECTION

- 10. BUS SLIDERS (BUS VOLUME)
- 11. BUS SELECT KEYS
- 12. MASTER DISPLAY
- 13. WRITE KEY
- 14. TRANPOSE KEY
- 15. KEYPAD
- 16. DECREMENT KEY (CANCEL KEY)
- 17. INCREMENT KEY (ENTER KEY)

5. REAR PANEL



1. AC POWER SWITCH
2. MEMORY PROTECT SWITCH
3. START/STOP JACK
4. PROGRAM UP JACK (PROGRAM ADVANCE)
5. ASSIGNABLE FOOTSWITCH JACK
6. PORTAMENTO ON/OFF JACK
7. DAMPER PEDAL JACK
8. ASSIGNABLE PEDAL JACK
9. VOLUME PEDAL JACK
10. MIDI JACKS

6. BASIC OPERATION

USING THE NUMBER PAD

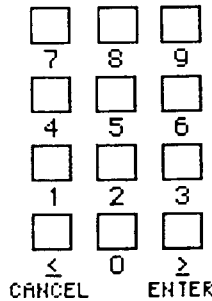
The M8000's number pad is a 10-key pad much like a telephone's or calculator's. Depending on the specific parameter you're changing, the numbers you select will either show up on the three-digit Master Display or on one of the two-digit LED Displays of the Bus Control Section.

Several keys perform special functions:

Left arrow key (Decrement key): Decrements number (decreases it by one). Hold the left arrow key to continue decreasing the value on the display. Hold the left arrow key and press 0 (zero) to rapidly decrease the value on the display.

Cancel key: Cancels any change you've made to the value on the Master Display. The Master Display will immediately return to its value before you began editing.

Zero key: Greatly increases the rate at which the displayed value increases or decreases when pressed and held in combination with one of the arrow keys.



Right arrow key (Increment key): Increments number (increases it by one). Hold the right arrow key to continue increasing the value on the display. Hold the right arrow key and press 0 (zero) to rapidly increase the value on the display.

Enter key: Locks in the correct value when it appears on the Master Display.

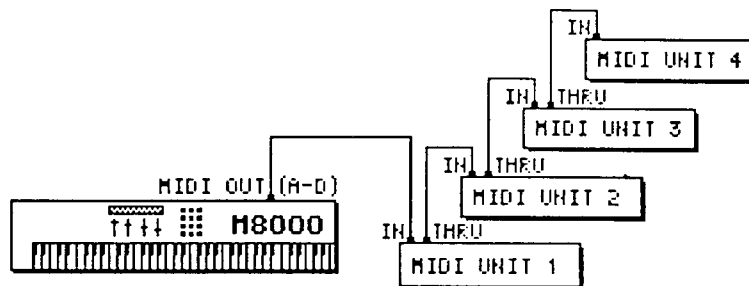
INCORPORATING THE M8000 INTO A MIDI SETUP

The M8000 can be incorporated into four basic MIDI setups. In each setup, make sure all MIDI slaves connected to one of the M8000's MIDI buses, are set to the same MIDI channel as the bus.

1. NORMAL MIDI OUT:

The same MIDI information is transmitted by all four of the M8000's MIDI OUTs. Several MIDI instruments may be connected in series to one of the M8000's MIDI OUTs. Each instrument's MIDI IN is connected to the MIDI THRU of the previous instrument.

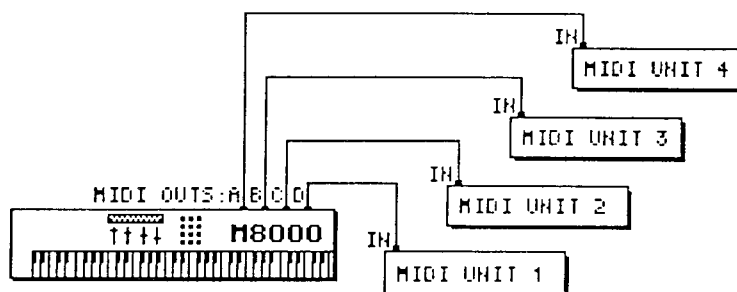
When you turn on the M8000, it's automatically set for Normal MIDI Out.



2. SEPARATE MIDI OUTS:

Each MIDI OUT sends separate MIDI data. Four separate MIDI devices are connected to the M8000's four separate MIDI OUTs. Use the ENTER & CANCEL keys (< and >) to set the appropriate MIDI channel for each instrument. The M8000 will not let you set two MIDI OUTs to the same MIDI channel.

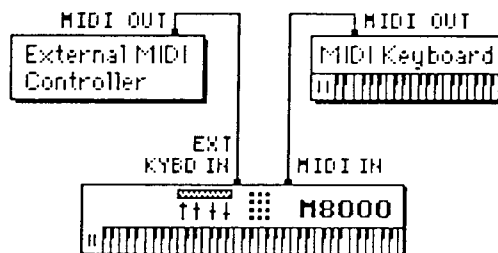
To use the Separate MIDI OUTs mode, press and hold both the CANCEL and ENTER keys while you turn the power on.



3. EXTERNAL MIDI CONTROLLER:

An external MIDI controller is connected to the M8000's MIDI IN. In this case, MIDI information passes through the M8000 from its MIDI IN to its 4 MIDI OUTs. The M8000's keyboard is disabled and the external controller's MIDI information is transmitted by the M8000. The M8000's wheel and rear panel controls are still active, however.

To use this mode, press and hold the 0 (zero) key while you turn the power on.



4. EXTERNAL KEYBOARD:

An additional keyboard is added so that you can play both keyboards simultaneously. You can set up the M8000 so that it sends each keyboard's MIDI data to different M8000 MIDI OUTs.

7. PLAY MODE

The M8000 has two basic modes, PLAY and EDIT.

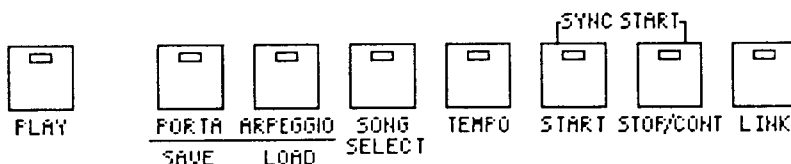
In Play mode, the M8000's keyboard controls other MIDI devices connected as slaves and its slider and wheel controls vary volume, velocity and aftertouch sensitivity, pitch bend and modulation. The Performance Section's keys apply other effects and operate other MIDI components.

In Edit mode, you set combinations of MIDI parameters as presets. Later, when you return to Play mode, you recall certain presets. You can even recall a predetermined order of presets as a Link.

EDIT MODE FUNCTIONS

<input type="checkbox"/>	MIDI CH	PROGRAM	TRANS-POSE	DETUNE	VOICE LIMIT	DELAY PRIORITY	DELAY PARA
<input type="checkbox"/>	VELO SENS	PRES SENS	ZONE	ARPEGGIO	PITCH BEND (P)	MOD	VOLUME
<input type="checkbox"/>	DAMPER	PORTA-MENTO	PEDAL	SW	EXT KYBD	REGIST PARA	VALUE

PLAY MODE FUNCTIONS



Use the Play key to jump back and forth between the M8000's two basic modes of operation, Play and Edit. The Play key is a toggle. When you press it once to turn Play mode on, the LED in the Play key will light. In Play mode, you can use the M8000 to control synths, sequencers, drum machines and other MIDI devices.

When you press the Play key again, the LED in the Play key turns off. Now, Edit mode is on. In Edit mode, you can predetermine the parameter settings of the M8000's four separate MIDI outputs (buses) and store the settings as presets. For example, you can set the MIDI channel, program number, detune level, and other MIDI parameters of each MIDI Bus and store that combination as preset 23. Later, when you recall preset 23, the M8000's MIDI parameters will instantly change to match the settings you stored earlier. Section 11 of the manual, Edit mode, pages 16-32 discusses methods of setting individual parameters.

With the M8000's Link feature, you can cycle from one preset to the next in a predetermined order, quickly changing combinations of parameter settings. This capability makes the M8000 an ideal live performance tool. For more about Link mode, see page 14.

8. BUS CONTROL SECTION

The Bus Control Section contains four sets of controls corresponding to the M8000's four separate MIDI buses (the four MIDI OUT ports on the back of the M8000). Each set of controls consists of a Bus Select Key, a slider and a two-digit LED called a parameter display.

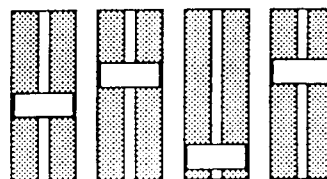
You can alter the basic status of each of the M8000's 4 MIDI OUTs by using the Bus Select Keys together with the M8000's number-key pad.

The Bus Control Section also contains a set of Master Sliders and two MIDI controller wheels.

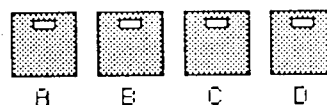
Parameter Displays:



Bus Sliders:



Bus Select Keys:



BUS CONTROLLERS

TURNING MIDI BUSES ON OR OFF

To activate a MIDI bus, press the corresponding Bus Select Key in the Bus Control Section until its LED lights. A MIDI bus is on when the LED in its Bus Select Key is lit.

CHANGING THE MIDI PROGRAM NUMBER OF A BUS

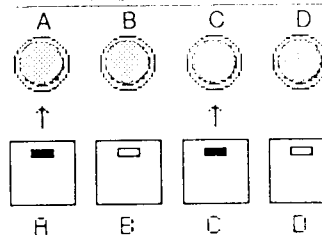
In Play mode, press and hold one of the Bus Select Keys and use the number-pad to select a new MIDI program number. The M8000 gives you the flexibility to choose any MIDI program number through the full range allowable under the MIDI standard (0 - 127).

The number will appear on the two-digit parameter display above the Bus Select Key. The left LED of each two-digit pair shows a small dot when the program number is 100 or greater. When the dot appears, it represents 100 and the LED's two digits represent the second and third digits of the program number.

You can use the left or right arrow keys to decrement or increment the program number, or use the number-pad to select a new program number. Use this method when you are in Play mode and want to change program numbers on the fly.

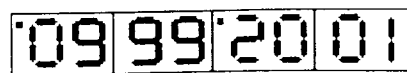
You can also set the program number in Edit mode with parameter #2, Program. Use this method when you are setting up a Preset. For more information, see Edit mode, Program parameter, page 18.

MIDI OUTPUTS



LED's lit in keys A & C indicate that MIDI Buses A and C are active.

Program Numbers over 100 are shown with a dot in the display:



Program 109 | Program 99 | Program 120

ALTERING THE VOLUME OF A BUS

Each of the four sliders in the Bus Control Section alters the volume of its corresponding MIDI OUT. The slider affects the value of MIDI controller 7, Volume.

The four sliders give you individual control over each MIDI bus. The master volume slider at the far left of the control panel affects all four MIDI buses at once.

MASTER CONTROLLERS

The M8000's three main slider controls are just to the left of the Parameter Table. They include a Master Volume Slider, a Velocity Sensitivity Slider, and a Pressure Sensitivity Slider. These sliders affect all four MIDI Buses at once and provide real-time control of velocity and aftertouch MIDI data.

MASTER VOLUME SLIDER

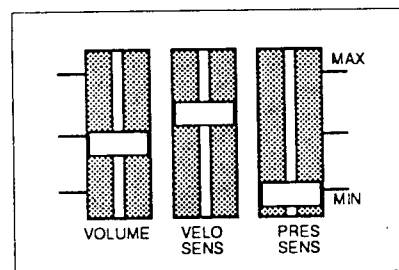
The master volume slider alters the volume of all MIDI instruments connected to the M8000. Only instruments that are capable of responding to MIDI volume data are affected by this control.

VELOCITY SENSITIVITY SLIDER

The velocity sensitivity slider is a control you can use in real time, as you play. It varies the scaling of MIDI velocity data transmitted by the M8000.

Velocity scaling determines the relationship between the actual key velocity sensed by the M8000 and the velocity information transmitted through the MIDI buses. For example, by altering velocity scaling, you can make the M8000 more responsive to differences in the low-velocity range than differences in the high-velocity range. Velocity scaling is a fine-tuning adjustment that makes the M8000 more adaptable to your particular playing style.

You can also set any one of several different velocity sensitivity scales by changing the value in Edit Mode of Parameter 8, Velocity Sensitivity. You can find more information in the section on editing parameter #8, Velocity Sensitivity, page 24.



PRESSURE SENSITIVITY SLIDER

Like the velocity sensitivity slider, the pressure sensitivity slider is a control you can use in real time, as you play. It varies the scaling of MIDI aftertouch data transmitted by the M8000.

Pressure scaling determines the relationship between the actual aftertouch pressure sensed by the M8000 and the aftertouch information transmitted through the MIDI buses. For example, by altering pressure scaling, you can make the M8000 more responsive to differences in the low-pressure range than differences in the high-pressure range. Pressure scaling is a fine-tuning adjustment that makes the M8000 more adaptable to your particular playing style.

You can also set any one of several different pressure sensitivity scales by changing the value in Edit Mode of Parameter 9, Pressure sensitivity. You can find more information in the section on editing parameter #9, Pressure Sensitivity, page 25.

WHEEL CONTROLLERS

The M8000's two MIDI controllers are wheels located to the left of the keyboard which vary pitch bend and modulation. These controllers affect only those MIDI buses which have been preset to respond to them.

For information on presetting MIDI buses to respond to the Pitch Bend and Modulation Controllers, see page 28.

PITCH BEND WHEEL

Pushing the pitch bend wheel forward (away from you) raises the pitch of MIDI sound sources connected to the M8000.

Pulling the pitch bend wheel back (toward you) lowers the pitch.

At the pitch bend wheel's center detente, the pitch is unaltered.

See Edit mode, Parameter 12, Pitch Bend, page 28 to learn how to set which buses will be affected by the pitch bend controller.

MODULATION WHEEL

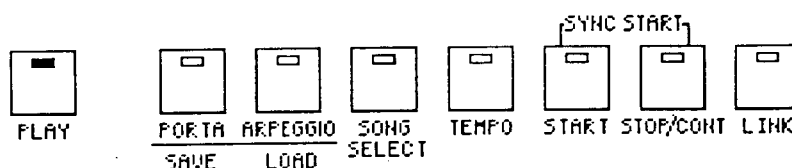
The Modulation controller affects the amount of modulation applied to a MIDI sound source. The level of modulation increases as you push the wheel forward, away from you.

9. PERFORMANCE SECTION

The Performance Section consists of seven keys that are active when the M8000 is in Play Mode (when the LED in the Play key is lit.)

Some keys are toggles which you use to turn effects on or off (Portamento, Arpeggio, Start, Stop/Cont). Some keys are used in conjunction with the number-pad to set performance factors (Tempo, Song Select). And, the Link key is used to record or recall presets to or from memory.

A description of each of the keys follows:



PORTA

Portamento smooths the transition in pitch from note to note. The tone of a synthesizer with Portamento on seems to glide from note to note. You can turn Portamento on and off while you're playing.

Portamento is active when the LED within the Porta key is lit. Pressing the Porta key once turns it on. You can apply Portamento to specific buses in Edit mode (See page 29.)

ARPEGGIO

You can turn the M8000's built-in arpeggiator on or off with the Arpeggio key while you are playing. Arpeggio is active when the LED within the Arpeggio key is lit.

With the arpeggio effect on, the M8000 can automatically create four different types of arpeggios. You must specify the arpeggio type in Edit Mode. Depending on which you specify, the M8000 will repeatedly play one of the following patterns based on a group of notes you play together and hold down:

- Arpeggio 1: lowest note to highest.
- Arpeggio 2: highest note to lowest.
- Arpeggio 3: lowest note to highest, then back down to lowest.
- Arpeggio 4: random combination of notes.

Other parameters which must be specified in Edit mode are:

Time value of arpeggio notes (1/4, 1/6, 1/8, 1/12, 1/16, 1/24, 1/32 notes). Depends on Tempo parameter setting.

Number of octaves spanned by the arpeggio (1, 2, or 3)

If you don't specify an arpeggio type, the M8000 defaults to Arpeggio 1.

For more information, see Arpeggio, page 27.

SONG SELECT

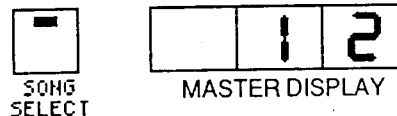
Range: 1-128 (MIDI 0-127)

Song Select allows you to change a drum machine's song number directly from the M8000.

TO USE SONG SELECT:

1. Make sure your drum machine is stopped.
2. Set the M8000 to Play Mode. The Master Display will display the current preset.
3. Press the Song Select Key. Its LED will light and the current song number will appear on the Master Display.
4. Use the number pad to enter a new song number. You can enter any number between 1 and 128. If you type the song number using the number keys, it will flash until you press Enter. While the Master Display is flashing, you may cancel the number you are entering by pressing the cancel key. If you use the increment and decrement keys to change the Song Select number, the Master Display will not flash.
5. Turn off Song Select by pressing the Song Select Key again. The Master Display will once again display the current preset.

When the Song Select key is pressed, the Song Number appears on the Master Display:



TEMPO

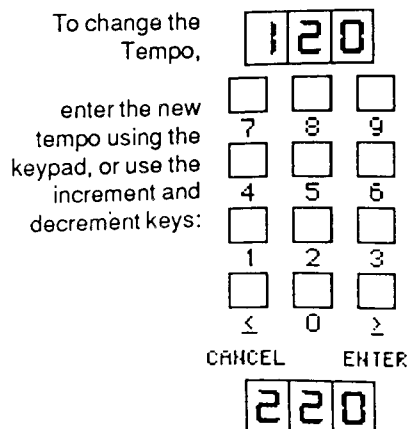
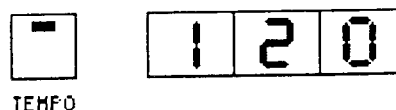
Range: 30-350

Tempo lets you control the tempo of a drum machine, a sequencer, or the M8000's built-in arpeggiator. You can set the tempo within a range of 30 to 350 beats per minute.

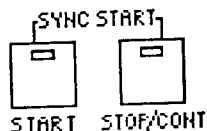
TO SET THE TEMPO:

1. Make sure you're in Play Mode. The Master Display shows the current preset.
2. Make sure the MIDI device you want to control is set to accept MIDI External Sync.
3. Press the Tempo Key. The light in the Tempo key will illuminate.
4. The Master Display will show the current tempo.
5. Choose a new tempo using the number pad.
6. Press the Tempo Key again. Its light will go out and the Master Display will again show the current preset.

When the Tempo key is pressed, the Tempo setting appears on the Master Display:



START and STOP/CONTINUE



START/STOP/CONTINUE

1. Make sure the drum machine is set for MIDI External Sync.
2. Press the Start key to start a drum machine at the beginning of its pattern or song.
3. A dot at the left side of the Master Display will blink to show the current tempo.
4. To stop the drum machine, press the Stop key. The Master Display's dot will stop blinking.
5. To start the drum machine again at the same place you left off, press the Stop/Continue key.
6. To start again at the beginning of the pattern or song, press the Start key instead.

Note: You can turn off the Stop key LED by pressing the Song Select key twice.

SYNC START

Sync Start starts a drum machine or sequencer at the same

instant you begin playing the keyboard:

1. Press the Stop/Continue key and hold it while you press the Start key.
2. Release both keys.
3. The Start key's light blinks to indicate that Sync Start is ready.
4. When you begin playing the keyboard, the drum machine or sequencer will start and the Start key's light will stay on steadily.

The M8000 can memorize an order of up to 32 complete settings of all of its parameters. Each setup is a combination of key, slider, and parameter settings. Once

LINK

The M8000 can memorize an order of up to 32 complete settings of all of its parameters. Each setup is a combination of key, slider, and parameter settings. Once you've entered the setup order, you can move from one setup to the next by pressing the increment or decrement key on the number pad.

LINK steps through a programmed set of presets:

> 2 -> 14 -> 5 -> 2 -> 4 -> 20

TO ENTER THE SETUP ORDER:

1. Be sure the M8000 is in Play mode.
2. Press Link and Write together.
3. Enter a setup number on the number pad. (77)
4. Press Enter.
5. Enter the next setup number on the number pad. (88)
6. Press Enter.
7. Continue, up to 32 presets

Master Display:

L - -

L 7 7

L - -

L 8 8

L - -

When you've finished entering the setup order, press either the Link or Write key to lock it in.

TO PLAY A LINK:

Press LINK:



LINK

To advance to the next Link, press the Increment key:



or use the footswitch.

To back to the previous Link, press the Decrement key.



Display shows
Link Preset:

L 2



L 14



L 5



L 14

10. TRANPOSE

The M8000's Transpose key affects all four buses at once. The Transpose key only works when the M8000 is in Play mode. When the keyboard has been transposed to a new key, the Transpose key blinks.

TRANSPOSING THE KEYBOARD

1. In Play mode, press the Transpose key. Its LED lights and the Master Display shows the current key. The default is C.
2. Press the increment or decrement key to raise or lower the pitch. A small dot to the right of the letter on the Master Display indicates a sharp. You can transpose the keyboard up to five steps higher (to the key of F) or up to six steps lower (to the key of F#). This gives you one full octave as a possible transpose range.
3. Press the Transpose key again. The M8000's pitch will change and the Master Display will again show the current preset. While the M8000 is set to a key other than C, the Transpose key will blink to show that Transpose is active.

RETURNING THE KEYBOARD TO C

1. Press the Transpose key again so that its LED lights steadily.
2. Press the 0 (zero) key on the number pad.
3. The Master Display will show C.
4. Press the Transpose key again so that its LED goes off and the Master Display again shows the current preset number.

Keyboard set to C
(no transposition)



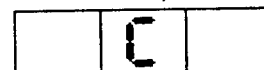
TRANPOSE

Keyboard Transposed
(Transpose light flashes)



TRANPOSE

When pressing the Transpose key, the Master Display shows the transposition key:



11. EDIT MODE

You can set the parameters you wish for each of the M8000's 99 possible presets in Edit Mode.

When you turn the M8000 off, the current settings of all of its parameters are maintained by the battery backup, even if you unplug it. The M8000's lithium battery provides the power necessary to retain the M8000's parameter memory.

To enter Edit Mode, turn off the Play key in the Performance Section by pressing it so that its light goes out. You'll know you're in Edit mode when one of the lights in the Parameter Table turns on.

In Edit Mode, the functions of the Performance Section keys are disabled. These keys are now used to call up a parameter in the parameter table and to change from one parameter to another.

<input checked="" type="checkbox"/>	MIDI CH	PROGRAM	TRANS-POSE	DETUNE	VOICE LIMIT	DELAY PRIORITY	DELAY PARA
<input type="checkbox"/>	VELO SENS	PRES SENS	ZONE	ARPEGGIO	PITCH BEND (B)	MOD	VOLUME
<input type="checkbox"/>	DAMPER	PORTA-MENTO	PEDAL	SW	EXT KYED	REGIST PARA	VALUE



PLAY



PORTA
SAVE



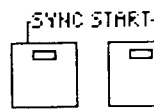
ARPEGGIO
LOAD



SONG
SELECT



TEMPO



START



STOP/CONT



LINK

Each of the seven keys in the performance section corresponds to one column in the parameter table. By pressing any one of the keys repeatedly, you can cycle from one parameter to the next in the corresponding column.

To cycle through the selected column:

> MIDI CHANNEL -> VELO SENS -> DAMPER

<input checked="" type="checkbox"/>	MIDI CH
<input type="checkbox"/>	VELO SENS
<input type="checkbox"/>	DAMPER

Press the key underneath:



PORTA
SAVE

SETTING PARAMETERS

CHANNEL

Range 1-16

The M8000 allows you to set each of the four MIDI buses to a different MIDI channel. The current MIDI channel settings are displayed on the four two-digit LEDs when you select the MIDI CH parameter on the parameter table.

Note: You cannot assign the same MIDI channel to more than one bus at a time.

You can also set the M8000's MIDI IN channel. This channel setting is displayed on the three-digit Master Display to the right of the Master Control Section. The MIDI IN channel is the channel setting for the M8000's MIDI IN port. The M8000 receives data from an external keyboard through this MIDI IN. In order to properly receive input from an external keyboard, you must set the M8000's MIDI IN channel to the same channel the external keyboard is using to transmit.

SETTING THE MIDI IN CHANNEL

1. When you first select the MIDI CH parameter on the parameter table, the current MIDI IN channel blinks on the Master Display.
2. To change the MIDI IN channel, repeatedly press either the increment or decrement key to increase or decrease the channel setting to any number between 1 and 16.
3. The Master Display will continue to blink until you select another parameter to edit or until you press one of the Bus Select Keys to alter the channels of individual buses.

SETTING THE MIDI OUT CHANNEL FOR A BUS

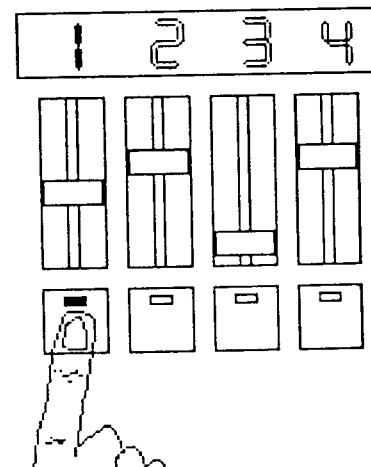
1. As before, when you first select the MIDI CH parameter on the parameter table, the current MIDI IN channel blinks on the Master Display.
2. To change one of the four MIDI buses' channel, press the appropriate Bus Select Key and hold it while you repeatedly press either the increment or decrement key to increase or decrease the channel number.
3. When you release the Bus Select Key, the bus will begin transmitting on the new channel.

Note: You cannot assign the same MIDI channel to two or more buses.

ABOUT AUXILIARY CHANNELS

When you set the channel of a MIDI bus, you are also automatically setting that buses' Spillover channel. The Spillover channel is used by the M8000's Spillover function and is automatically set 8 channels higher or lower than the primary channel. For example, if you set a MIDI bus to channel 1, its Spillover channel is automatically set to channel 9.

Section 6, page 21, provides information about using the Spillover effect.



Hold the Bus Select Key WHILE you enter the desired MIDI channel number.

Primary and Spillover Channels

Primary Chan.	Spillover Chan.
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16
9	1
10	2
11	3
12	4
13	5
14	6
15	7
16	8

PROGRAM

Range: 1-128

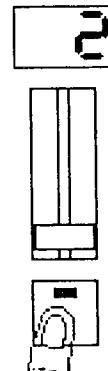
The M8000 lets you set each of the four MIDI buses to a different program number. A bus's program number sets the patch number of synthesizers connected to that bus.

SETTING BUS PROGRAM NUMBERS

1. Select the Program parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to set up. The current Program number blinks on the two-digit parameter display above the key.
3. Enter a new program number by using the number pad, just as you do in Play mode. Either type in a new program number or use the increment or decrement key to advance to the desired program number. Program numbers 100 and over are displayed with a dot in the left LED of the parameter display.
4. The new program number is not sent to the instrument on that bus until you release the Bus Select Key and the parameter display lights steadily.

Program Numbers can also be set in Play mode, by holding the Bus Select Key and entering the program number, as described above.

Hold the Bus Select Key
WHILE you enter the
desired program number.



TRANPOSE

Range: C-2 - G8

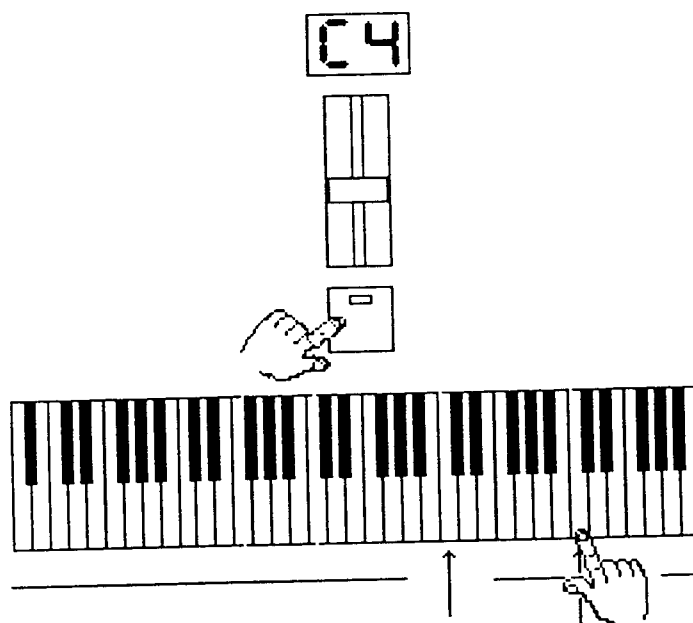
The M8000 allows you to transpose each MIDI bus individually.

At the M8000's default setting, its "Middle C" key, directly adjacent to the Bus Select Keys, is set to MIDI note C3. With transpose, you can set the "middle C" key to any other MIDI note. In effect, you are sliding the 88-note range of the keyboard left or right across the entire 127-note range of MIDI notes. Therefore, the M8000 can give you access to all 127 MIDI notes.

The MIDI standard specifies 127 separate MIDI note values. The lowest is called C-2 (C minus 2) and the highest is called G8. The letter corresponds to the note name and the number corresponds to the octave number. For example, A4 is the note A, in the fourth octave.

SETTING TRANPOSE

1. Select the Transpose parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to transpose. The current transpose setting blinks on the two-digit parameter display above the key.
3. Press a key on the M8000's keyboard to assign that note to the "middle C" key. The key's new MIDI note value appears on the parameter display. If a small dot appears on the parameter display, it indicates a sharp.
4. You can also use the decrement and increment keys to move up and down the scale.
5. If you press the C3 key (or the 0 (zero) key on the number pad) while the parameter display is blinking, the keyboard resets to its original, untransposed setting.



DETUNE

Range: -50 - 50

You can create a slight difference in tuning between each MIDI bus. This is called detuning. When instruments on two separate buses are slightly detuned, their resulting combined sound is different, often thicker sounding. For example, the richness of an orchestra's string section results from slight variances in tuning between all the stringed instruments.

Note: Make sure the slave instrument is set to receive pitch bend, since the M8000 sends detune information as pitch bend messages.

TO DETUNE A BUS:

1. Select the Detune parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to detune. The current detune level blinks on the two-digit parameter display above the key.
3. Enter the detune level (-50 to 50) with the number pad. Either type in the new setting directly or use the increment or decrement key to advance to the desired setting. Pressing 0 (zero) on the number pad will disable detuning by setting it to zero.
4. A detune level with a positive number raises the pitch of the bus.
5. To enter a detune level with a negative number, press the 0 key, then use the decrement key to enter a minus (a small dot on the parameter display). Then, enter the specific negative detune level by using the number pad or the decrement key.
6. The detune level of the bus does not change to reflect the new setting until you release the Bus Select Key.

VOICE LIMIT

Range: 1 - 16

By setting the voice limit of each bus, you can restrict the number of simultaneously sounding voices each of the M8000's buses can control. This feature is helpful when you are working with sound sources that have only a limited number of polyphonic voices. By using Voice Limit and Delay/Priority together, you can have the M8000 automatically send any MIDI notes that exceed the voice limit to the secondary MIDI channel. A second synthesizer on the same bus, tuned to the secondary MIDI channel will play those notes. This effect is called Spillover. Spillover allows you to create 12-voice polyphony from two 6-voice polyphonic synthesizers, for example. Spillover is covered later in this section.

SETTING THE VOICE LIMIT OF A BUS

1. Select the Voice Limit parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to set up. The current Voice Limit setting blinks on the two-digit parameter display above the key.
3. Use the increment or decrement key to set the voice limit to any number between 1 and 16.

DELAY/PRIORITY

(Possible settings: LA, Hi, Lo, SP, dL, dS)

PRIORITY

When you simultaneously play more notes than the Voice Limit allows, certain notes exceeding the Voice Limit are filtered out of the transmitted MIDI data. Which notes are sent and which are filtered out is determined by the Priority setting.

SETTING PRIORITY

1. Select the Delay/Priority parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to set up. The current Delay/Priority setting blinks on the two-digit parameter display above the key.
3. Press the increment key repeatedly to move forward through the six possible Delay/Priority settings. You can also use the decrement key to move through the settings in reverse.

Delay/Priority Parameter Settings

LA	Last notes played have priority. Earlier notes filtered out.
Hi	Highest notes played have priority. Lower notes filtered.
Lo	Lowest notes played have priority. Higher notes filtered.
SP	Spillover (described next)
dL	MIDI Delay (described later in this section).
dS	Delay/Spillover (described later in this section).

SPILOVER

The M8000's Spillover function automatically sends MIDI notes that exceed a buses' Voice Limit to the secondary MIDI channel. The advantage of Spillover is that it allows you to use two MIDI sound sources to achieve greater polyphony.

For example, you can use two six-voice synthesizer modules to get twelve-voice polyphony by setting one module to the primary MIDI channel and the second module to the secondary MIDI channel (see page 17). To achieve twelve-voice polyphony, you'd set the Voice Limit of the bus to 6 and turn on the Spillover function. The first synthesizer sounds all notes up to the 6-voice limit. MIDI notes that exceed the 6-voice limit are automatically sent to the secondary MIDI channel where they are sounded by the second six-voice synthesizer.

USING THE SPILOVER FUNCTION: An Example

1. Set the MIDI Channel of Bus A to 1. Set Module 1 to MIDI channel 1.
2. Set the MIDI Channel of Module 2 to 9.
3. Set the Delay/Priority function to SP (spillover)
4. Set the Voice Limit of Bus A to 3.
5. Play a 7-note chord.

Voices 1-3 are transmitted on MIDI channel 1 to the first module. Voices 4-7 are transmitted on MIDI channel 9 to the second module. In Separate MIDI Output mode, the spillover notes appear on the same MIDI Out as the primary notes.

By varying the Voice Limit, you can create a blend of two modules, each set to a different sound. For example, Module 1 might be a brass sound, and Module 2 might be a string sound. A 7-note chord with the setup in the example above would be a blend of both brass and string sounds.

DELAY

When the Delay/Priority parameter is set to dL (Delay), the M8000 creates a MIDI delay for every note struck on its keyboard.

To create a MIDI Delay, the M8000 sounds additional MIDI Notes On that are identical to the first Note On. The number of additional Notes On, their velocity relative to the original Note On, and the interval between Notes On can be set in Delay Parameters, described next.

When you use the M8000's MIDI Delay, bear in mind that it sends additional Notes On to trigger all those delay notes. Those additional notes may use up your MIDI sound source's voices if they sustain while other voices begin. So, plan the use of MIDI Delay carefully. One possible solution is to use Delay/Spillover.

DELAY/SPILLOVER

When you use Delay/Spillover, the M8000 sends MIDI Delay Notes On that exceed the Voice Limit setting to the secondary channel. With Delay/Spillover, these notes can be produced by a second synthesizer tuned to the secondary channel.

To use Delay/Spillover, set the Voice Limit and Delay parameters (explained in the next section) and set DS (Delay/Spillover) as the Delay/Priority parameter setting.

DELAY PARA (Delay Parameters)

The M8000's Delay Parameter settings determine the interval between successive notes for the duration of the delay, the rate of decrease in velocity of the delayed notes, and the number of delay notes which are transmitted for each original note.

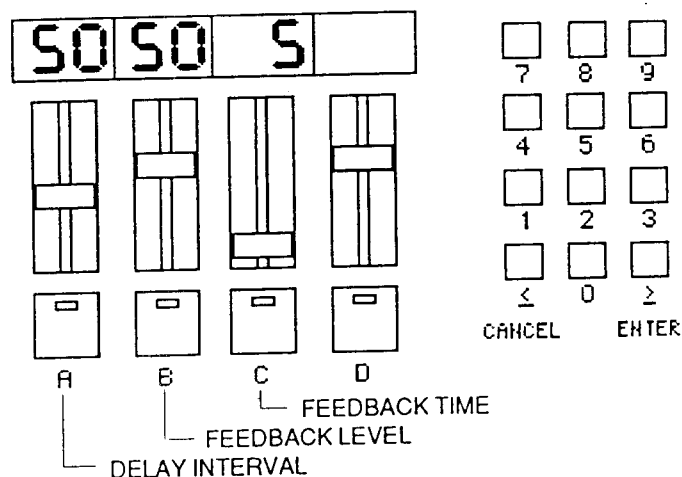
DELAY PARAMETERS

When you select Delay Para from the parameter table, its three parameter settings show up on the two-digit parameter displays.

A. **DELAY INTERVAL:** the length of time, in milliseconds, between successive notes. Possible range: 10 - 990 msec. Multiply the reading on the two-digit LED by 10 to arrive at the actual interval. (1 = 10 msec, 99 = 990 msec.)

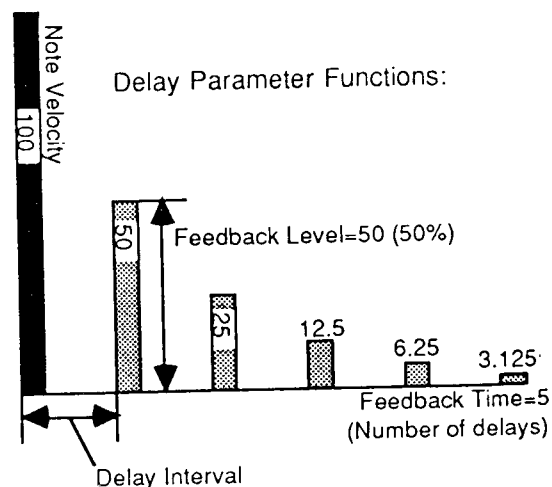
B. **FEEDBACK LEVEL:** the rate of decline in velocity of successive notes. A feedback level of 80 means that each successive notes' velocity is 80% of the previous note. Bear in mind that velocity can affect the timbre of some instruments. So, delay notes may have a different timbre from the original. Also, remember that it's possible to set a rate of decline that's so rapid that you may not be able to hear the last note.

C. **FEEDBACK TIME:** the number of successive notes. Possible range is 1-5.



SETTING THE DELAY PARAMETERS

1. Select the Delay Para parameter on the parameter table.
2. Press and hold the Bus Select Key which corresponds to the parameter you want to alter (delay interval, feedback level, or feedback time). The current setting blinks on the two-digit parameter display above the key.
3. Use the number pad or use the increment or decrement key to input the new setting.
4. When you release the Bus Select Key, the parameter display glows steadily to indicate the parameter has been set.



VELO SENS (Velocity Sensitivity)

Most MIDI Controllers offer a direct correspondence between the keystrike force sensed at the keyboard and the MIDI velocity data transmitted by the controller. The transmitted velocity information steadily increases as the keystrike increases in strength.

VELOCITY SCALE SETTINGS

Scale 0: Velocity sensitivity is disabled. The same velocity data (64) is sent by every keystrike, no matter how hard.

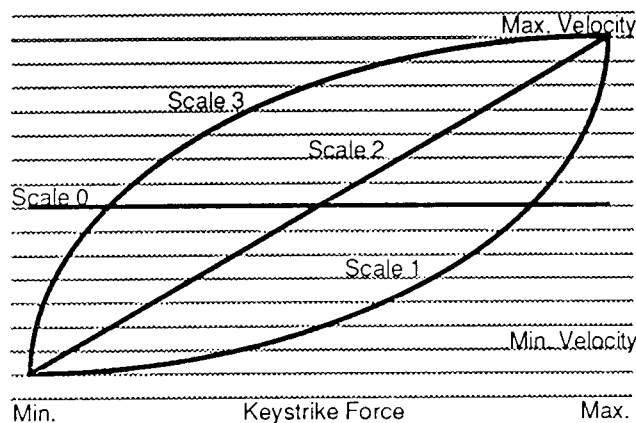
Scale 1: Significant differences in velocity data are not generated until keystrikes are strong. All soft keystrikes produce about the same velocity data. Keyboard players with a strong touch may find this setting more suitable to their style.

Scale 2: The value of the MIDI velocity data increases steadily as keystrike force increases. The correspondence between keystrike force and MIDI velocity data is exactly one-to-one.

Scale 3: Even small differences between light keystrikes have a significant impact on the resulting MIDI velocity data transmitted by the M8000. All hard keystrikes send about the same velocity data. Keyboard players with a light touch may find this setting more suitable to their style.

The M8000 offers enhanced control over velocity sensitivity. It lets you scale the relationship between keystrike force and the velocity data generated. Velocity sensitivity scaling is a fine-tuning adjustment that makes the M8000 more adaptable to your particular playing style.

The M8000 lets you set four discrete velocity sensitivity scales by editing parameter # 8, Velo Sens. The default, factory setting is Scale 2.



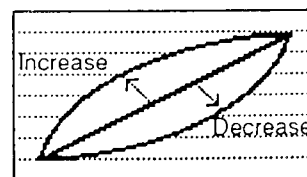
PRESETTING THE VELOCITY SCALE

1. Select the Velo Sens parameter on the parameter table.
2. Press and hold the Bus Select Key corresponding to the bus you want to alter. The current velocity scale setting blinks on the two-digit parameter display above the key.
3. Use the decrement or increment key to change the velocity scale.
4. When you release the Bus Select Key, the parameter display glows steadily to indicate the parameter has been set.

ALTERING THE VELOCITY SENSITIVITY SCALE IN REAL TIME

While you're playing, you can use the velocity sensitivity slider labeled Velo Sens to alter the velocity sensitivity scale in real time. The correspondence between the slider setting and the velocity sensitivity scale is diagrammed below. When the slider is in the middle detente position, the result is the curve shown above. Pushing the slider up increases the sensitivity (logarithmic), pulling the slider down moves the decreases the sensitivity (anti-logarithmic).

Effect of the VELO SENS control on Scale 2:



PRES SENS (Pressure Sensitivity)

Most MIDI Controllers offer a direct correspondence between the aftertouch pressure sensed at the keyboard and the MIDI aftertouch data transmitted by the controller. The transmitted aftertouch information steadily increases as the aftertouch pressure increases in strength.

The M8000 offers greater control over pressure sensitivity. It lets you scale the relationship between aftertouch pressure and the aftertouch data generated. Pressure sensitivity scaling is another fine-tuning adjustment that makes the M8000 more adaptable to your particular playing style.

PRESSURE SENSITIVITY SCALES

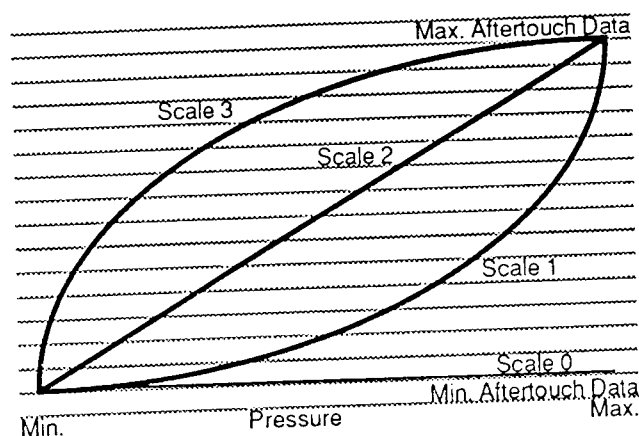
Scale 0: Pressure sensitivity is disabled. The keyboard does not send aftertouch data.

Scale 1: Significant differences in aftertouch data are not generated until aftertouch pressure is strong. All soft aftertouch pressure produces about the same aftertouch data. Keyboard players with a strong touch may find this setting more suitable to their style.

Scale 2: The value of MIDI aftertouch data increases steadily as aftertouch pressure increases. The correspondence between aftertouch pressure and MIDI aftertouch data is exactly one-to-one.

Scale 3: Even small differences in light aftertouch pressure have a great impact on the resulting MIDI aftertouch data transmitted by the M8000. All strong aftertouch pressure sends about the same velocity data. Keyboard players with a light touch may find this setting more suitable to their style.

Just like velocity sensitivity scaling, the M8000 lets you set four discrete pressure sensitivity scales by editing parameter # 9, Pres Sens. The default, factory setting is Scale 2.



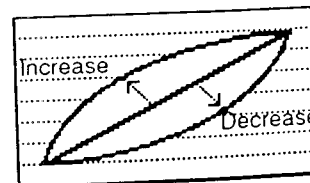
PRESETTING THE PRESSURE SENSITIVITY SCALE

1. Select the Pres Sens parameter on the parameter table.
2. Press and hold the Bus Select Key which corresponds to the bus you want to alter. The current aftertouch pressure sensitivity scale setting blinks on the two-digit parameter display above the key.
3. Use the decrement or increment key to change the aftertouch pressure sensitivity scale.
4. When you release the Bus Select Key, the parameter display glows steadily to indicate the parameter has been set.

ALTERING THE PRESSURE SENSITIVITY SCALE IN REAL TIME

While you're playing, you can use the pressure sensitivity slider labeled Pres Sens to alter the aftertouch pressure sensitivity scale in real time. The correspondence between the slider setting and the pressure sensitivity Scale 2 is diagramed below. When the slider is in the middle detente position, the result is the scale as shown above. Pushing the slider up increases the sensitivity (logarithmic), pulling the slider down moves the decreases the sensitivity (anti-logarithmic).

Effect of the PRES SENS control on Scale 2:



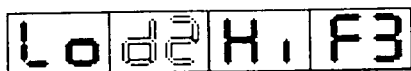
ZONE

Range: C -2 - G8

The four MIDI buses may be assigned to specific keyboard zones. Notes played in a particular keyboard zone will be sent to only those buses that have been set to respond that zone. Zones may overlap. By setting the zone parameter, it's possible to reserve different areas of the keyboard to trigger instruments connected to different MIDI buses.

SETTING ZONES

1. Select the Zone parameter on the parameter table.
2. The active zone setting for Bus A will be displayed using all four two-digit parameter displays. The left two parameter displays show the low note of the keyboard zone. The right two displays show the high note of the keyboard zone.
3. Press the Bus Select Key which corresponds to the bus you want to alter. The light in that key will illuminate and the displays will show the current zone setting for that bus. Only one Bus Select Key can be active at a time.



4. This display indicates that the lowest note of the zone is D2 and the highest is F3. The lowest note (D2) is flashing so it is ready to be set.

5. If you'd prefer to set the highest note first, you can use the increment (right arrow) key to make the highest note ready to be set. Similarly, you can jump back to the lowest end of the zone by pressing the decrement key (left arrow).
6. When you're ready to set a note that corresponds to one end of the zone, simply press that note on the keyboard.
7. When you've entered a note, the display indicating the other end of the zone will flash. Now, enter that note.
8. The M8000 will not accept a zone setting that places the high end of the zone lower than the low end of the zone or vice versa. The display will continue to blink until you have made the correction.
9. Pressing the 0 (zero) key on the number pad resets the zone to Lo A-1, Hi C7.
10. The new keyboard zone setting takes effect when you return to Play mode or edit another parameter.

ARPEGGIO

The M8000's built-in arpeggiator can automatically create four different arpeggio types which can be applied to selected buses. Only one type of arpeggio can be used at a time, though. You can specify in Edit mode the parameters of the arpeggio the M8000 will create. Then, in Play mode, you can turn Arpeggio on or off with the Arpeggio Performance Key. The arpeggiator will repeatedly play one of the following patterns based on a group of notes you play together and hold down:

- Arpeggio 1:** repeatedly plays lowest note to highest.
- Arpeggio 2:** repeatedly plays highest note to lowest.
- Arpeggio 3:** repeatedly plays lowest note to highest, then back down to lowest
- Arpeggio 4:** repeatedly plays random combination of notes.

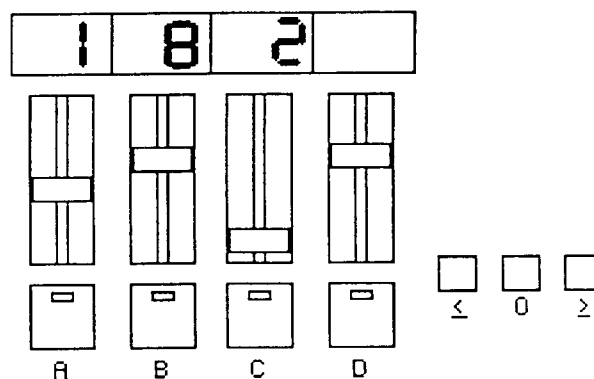
ARPEGGIATOR PARAMETERS

These parameters are set using the A, B, and C bus controllers as shown at right:

A Arpeggio Mode: Sets the Arpeggio number (1-4).

B Note Value: Note value of each note. $1/4 = 1$ note per beat at the tempo specified by the Tempo key in the Performance Section. Possible note values: $1/4$, $1/6$, $1/8$, $1/12$, $1/16$, $1/24$, $1/32$.

C Octave Span: Number of octaves spanned by the arpeggio. Options: 1, 2, or 3 octaves.



SETTING ARPEGGIO PARAMETERS:

1. Select the Arpeggio parameter on the parameter table.
2. The three parameters of the Arpeggio setting will show up on the parameter displays.
3. Press and hold the Bus Select Key which corresponds to the parameter setting you want to alter. The parameter setting blinks on the two-digit parameter display above the key.
4. Use the decrement or increment keys to alter each parameter.
5. When you release the Bus Select Key, the parameter display glows steadily to indicate the parameter has been set.
6. The tempo of the arpeggio depends on the tempo set with the Performance Section's Tempo key.
7. Press the Bus Select Keys corresponding to the buses that the Arpeggio should affect when using the Arpeggiator in Play mode.

ON/OFF PARAMETERS

Parameters 12-16 are on/off switches. They're used to selectively apply certain parameters to specific buses. For example, to turn Pitch Bend on for buses A and C only.

You can easily identify On/Off parameters on the parameter table. On/Off parameters are labeled with their MIDI parameter (a number or letter in parentheses.)

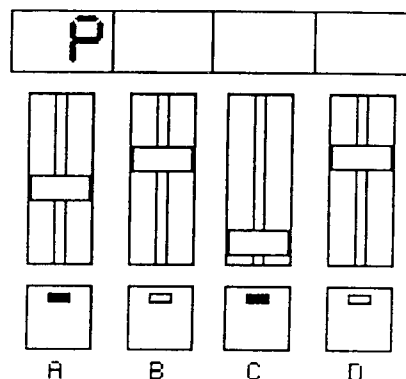
PITCH BEND (P)

Range: On/Off

When you select the Pitch Bend parameter from the parameter table, the leftmost parameter display shows the letter P.

Simply press the Bus Select Keys corresponding to the buses that the pitch bend wheel should affect.

In the diagram, buses A and C will be affected by the pitch bend wheel.



MOD (1) (Modulation)

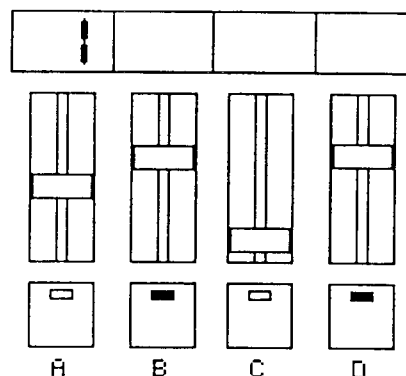
Range: On/Off

When you select the Mod parameter from the parameter table, the leftmost parameter display shows the number 1.

Simply press the Bus Select Keys corresponding to the buses that the modulation should affect.

In the diagram, buses B and D will be affected by the modulation wheel.

Note: Be careful not to try to turn off modulation while the modulation wheel is on. Otherwise, modulation will not turn off.



VOLUME (7)

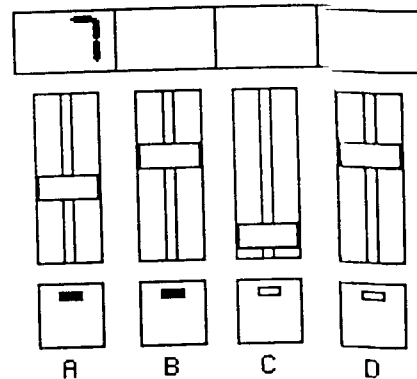
Range: On/Off

The Volume parameter lets you determine which buses you'd like an expression pedal to affect. The expression pedal is plugged into the rear panel jack on the M8000 labeled "Volume."

When you select the Volume parameter from the parameter table, the leftmost parameter display shows the number 7 (Volume is MIDI Parameter #7).

Simply press the Bus Select Keys corresponding to the buses that the Volume pedal should affect.

In the diagram, buses A and B are affected by the Volume pedal.



DAMPER (64)

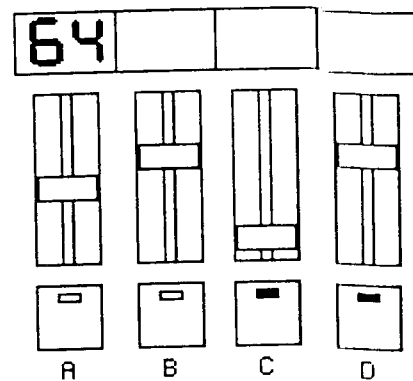
Range: On/Off

The Damper parameter lets you determine which buses you'd like a sustain pedal to affect. The sustain pedal is plugged into the rear panel jack on the M8000 labeled "Damper."

When you select the Damper parameter from the parameter table, the leftmost parameter display shows the number 64 (Sustain is MIDI Parameter #64).

Simply press the Bus Select Keys corresponding to the buses that the sustain pedal should affect.

In the diagram, buses C and D are affected by the damper pedal.



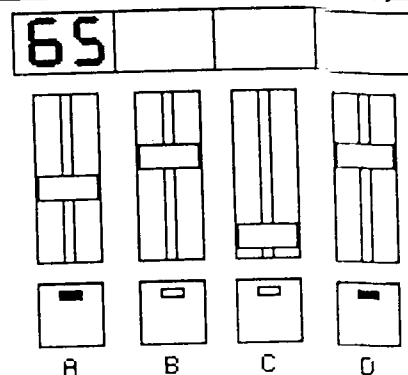
PORTAMENTO (65)

Range: On/Off

When you select the Portamento parameter from the parameter table, the leftmost parameter display shows the number 65 (Portamento is MIDI parameter #65.)

Simply press the Bus Select Keys corresponding to the buses that the Portamento should affect when the M8000 is in Play mode and you've pressed the Performance Section's Porta key.

In the diagram, buses A and D will be affected by the Porta key.



PEDAL

(Pedal Control Assign)

Options: -P, P, 1-31, 64-95

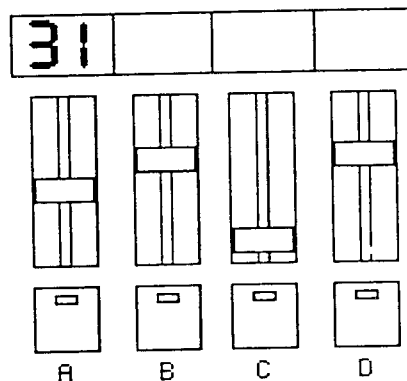
You can connect an expression pedal to the M8000's rear panel jack labeled "PEDAL" and assign it to pitch bend or any of 63 continuous controllers designated by the MIDI specification.

ASSIGNING THE PEDAL

1. When you select the Pedal parameter from the parameter table, the leftmost parameter display shows the current setting: P indicates Pitch Bend Up, -P indicates Pitch Bend Down, and a number indicates a continuous controller. The list below shows common MIDI controller numbers.

2. Choose a MIDI Control assignment number. Use the increment or decrement key to select the appropriate assignment number. The current assignment number will appear on the leftmost parameter display.

3. Then, press the Bus Select Keys to determine which buses will be affected by the pedal.



SW

(Footswitch Controller Assignment)

Options: A, 64-95

You can connect a footswitch to the M8000's rear panel jack labeled "SW" and assign it to any of 32 possible controllers designated by the MIDI specification or you can have it turn the arpeggiator on or off.

ASSIGNING THE SW

1. When you select the Sw parameter from the parameter table, the leftmost parameter shows the current setting. When this parameter is set to A, the footswitch controls the arpeggiator. A number indicates control of one of the MIDI controllers, shown in the list at right.

2. To assign an alternate control to the footswitch, choose a MIDI Footswitch assignment number. Use the increment and decrement keys to select the appropriate assignment number. The current assignment number will appear on the leftmost parameter display.

3. Then, press the Bus Select Keys to determine which buses will be affected by the pedal.

COMMON MIDI CONTROLLER NUMBERS:

1	Modulation Wheel
2	Breath Controller
4	Foot Controller
5	Portamento Time
7	Main Volume
8	Balance
10	Pan
11	Expression
64	Damper Pedal
65	Portamento On/Off
66	Sustenuto
67	Soft Pedal
92	Tremolo Depth
93	Chorus Depth
94	Detune Depth
95	Phaser Depth

Note: Many of these controllers are not received by all MIDI instruments.

EXT KYBD (External Keyboard)

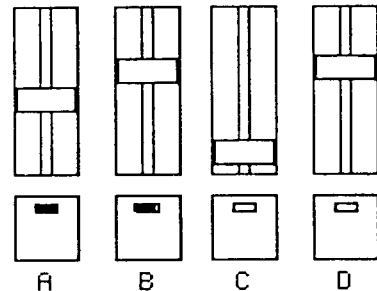
Use the Ext Kybd function to determine which buses you'll control from an external keyboard connected to the M8000 rear panel's EXT KYBD MIDI IN jack. Once you've determined that these buses are to be controlled by an external keyboard, they can no longer be controlled by the M8000's keyboard. With this function set, you can use the M8000 in combination with another keyboard to create a two-tiered setup or you can use a remote keyboard for live performance.

USING AN EXTERNAL KEYBOARD

1. Connect the MIDI OUT of an external keyboard to the EXT KYBD MIDI IN of the M8000.
2. The M8000 receives in OMNI mode through the EXT KYBD MIDI IN. Therefore, the M8000 will receive data on any MIDI channel the external keyboard uses to transmit.
3. Use the Bus Select Keys to determine which buses will be controlled by the external MIDI keyboard. A lit LED in a Bus Select Switch shows that its corresponding bus is controlled by the external keyboard. If the LED is off, that bus is controlled by the M8000's keyboard.

Note: In Edit mode, Bus Select Switch LEDs for buses assigned to the external MIDI keyboard will blink instead of lighting steadily, when editing parameters 1 (MIDI Channel) through 9 (Pres Sens.)

Program
Numbers:



REGIST PARA (Registered Parameter)

For future compatibility, the M8000 has capability to transmit 16 different registered parameters. Registered parameters are the most recent addition to the MIDI specification and, as of now, only 3 registered parameters are defined (Pitch Bend Sensitivity, Fine Tuning, Coarse Tuning). The Registered Parameters affect all four MIDI buses.

SETTING REGISTERED PARAMETERS

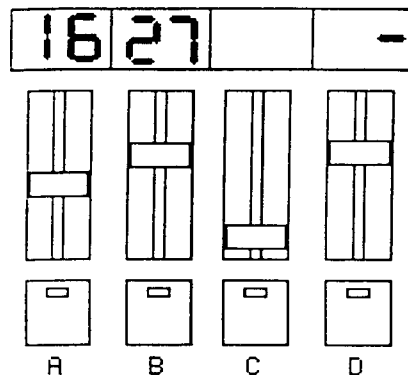
1. When you select the Regist Para parameter from the parameter table, parameter displays A, B and D show the current registered parameter value. Parameter display C is unused.

2. Choose a Registered Parameter: Press Bus Select Key A repeatedly until Parameter Display A advances to the number of the parameter you'd like to edit. Parameter display B will blink indicating that it's ready for input.

3. Use the increment or decrement key to select the appropriate setting for the parameter. You can press the 0 (zero) key with the increment and decrement keys to advance forward and backwards quickly.

4. When Parameter display B shows two dashes, the Registered Parameter has not been set up. To change the display to this condition, press the Bus Select Key B. This deactivates that parameter.

5. Set the value of parameter display D to either - or 0.



CURRENT REGISTERED PARAMETERS:

- 0 Pitch Bend Sensitivity
- 1 Fine Tuning
- 2 Coarse Tuning

REGISTERED PARAMETER RANGES:

The M8000 allows for two possible setting ranges of Registered Parameters. One range runs from 0 to 127. The other range runs from -64 to +63. The range is selected using Parameter D:

- With the display set to -: -64 to +63
- With the display set to 0: 0 - 127

VALUE (Registered Parameter Value)

Use the M8000's Value in combination with the Regist Para parameter to specify the value of the Registered Parameters you've chosen.

SETTING THE VALUE

1. Select a certain Registered Parameter with the Regist Para parameter. While that parameter's number is shown on the parameter display, switch to the Value parameter on the parameter table.

2. Press the Bus Select Key corresponding to the bus you'd like to set up. The parameter display above that key will blink.

3. Use the increment or decrement key to advance through the possible value settings, either -64 to 63 or 0 to 127, depending on the Regist Para settings.

4. Press the Bus Select Keys to select the buses you'd like to have affected by the Registered Parameters. Those buses affected will have their Bus Select Key LED's on.

12. MEMORY STORAGE

STORABLE PARAMETERS

You can store the following in presets:

1. The setting of any parameter you can alter in edit mode (parameters 1-21)
2. The current status of the Performance Section's Portamento and Arpeggio keys (On or Off)
3. The status of Bus Select Keys (On or Off)
4. The positions of the MIDI Volume Control Sliders

WRITING A PRESET INTO MEMORY

1. The M8000 can be in either Play or Edit mode. If it's in Play mode, the Link and Transpose keys must be off.
2. Turn off the Memory Protect switch on the M8000's rear panel.
3. Set all of the parameters, key settings and slider settings as you wish to be stored in a preset.
4. Press the Write key so that its LED lights. The preset memory is now ready to accept a new preset.
5. Enter the preset number on the Master Display by using the number pad. The Master Display will blink.
6. When you're sure the number on the Master Display is correct, press the Enter key to write the preset into memory. The Master Display will stop blinking and light steadily.

RECALLING A PRESET

1. In Play mode, enter the preset number on the Master Display with the number pad.
2. The Master Display will blink until you press the Enter key.
3. The new preset will not take effect until you press the Enter key and the Master Display lights steadily.

13. CARTRIDGE STORAGE

Use the M8000's cartridge memory option to save and recall all 99 presets at once. It's not possible to save or recall an individual preset. With cartridges you can build a library of important presets.

SAVING PRESET MEMORY TO THE CARTRIDGE

1. Turn off the memory protection switch on the RC-16 cartridge.
2. Insert the MC-16 cartridge into the M8000's cartridge slot. It only fits into the slot properly one way.
3. Press the Write key. You can save all presets to a cartridge regardless of whether the M8000 is in Play or Edit mode.
4. Press the Porta/Save key in the Performance Section. It will begin to blink indicating that the cartridge is now ready to accept the M8000's preset memory.
5. Press the Porta/Save key again to begin writing to the cartridge. The LED in the Porta/Save key will remain lit for a moment, then turn off when all the data has been transferred.
6. If the cartridge is not inserted in its slot correctly or the cartridge's memory protect switch is still on, the Master Display will show ERR. Make the correction and try to save again.
7. Turn on the Memory Protect Switch to protect the cartridge data.

LOADING PRESET MEMORY FROM THE CARTRIDGE

1. Make sure the M8000's memory protect switch is off.
2. Insert the MC-16 cartridge into the M8000's cartridge slot. It only fits into the slot properly one way.
3. Press the Write key. You can load all presets from a cartridge regardless of whether the M8000 is in Play or Edit mode.
4. Press the Arpeggio/Load key in the Performance Section. It blinks indicating that the M8000 is ready to load all presets from the cartridge.
5. Press the Arpeggio/Load key again to load preset memory. The LED in the key will remain lit for a moment, then turn off when all the data has been transferred.
6. If the cartridge is not inserted in its slot correctly or the M8000's memory protect switch is still on, the Master Display will show ERR. Make the correction and try to save again.

M8000 MIDI Implementation Chart

 Date: Mar. 1987
 Version: 1.0

Version: 1.0

Function		Transmitted				Recognised		Remarks
		A	B	C	D	NORM	EXT	4 OUT, 2 IN
Basic Channel	Default	1-16				1-16	All	Memoriozed
	Changed	1-16				1-16	X	
Mode	Default	3				3	1	
	Messages	3				X	X	
	Altered	*****				X	X	
Note Number	: True voice	0-127				0-127	0-127	

Velocity	Note ON	○ 9 nH V = 1-127				○	○	
	Note OFF	X 9 nH V = 0				○	○	
After Touch	Key's	X				X	X	
	Ch's	○				○	○	
Pitch Bender		○				○	X	
Control Change	1	○				○	X	Modulation Volume Hold 1 Portamento
	7	○				○	X	
	64	○				○	X	
	65	○				○	X	
	1-31	○				○	X	Assignable Assignable
	64-95	○				○	X	
	100, 101	○ (0-126)				X	X	RPC LSB, MSB Data Entry MSB, LSB
	6, 38	○				X	X	
Prog Change	: True #	○				X	X	
		*****				X	X	
System Exclusive		X				X	X	
System Common	: Song Pos	X				X	X	
	: Song Sel	○				X	X	
	: Tune	X				X	X	
System Real Time	: Clock	○				X	X	
	: Commands	○				○	X	
Aux Messages	: Local ON/OFF	X				X	X	
	: All Notes OFF	○				X	X	
	: Active Sense	○				○	X	
	: Reset	X				○	X	
Notes		Normal MIDI IN: Received messages described above, are controlled by memorized data and output to MIDI OUTs. External MIDI IN: Received messages are processed as well as internal keyboard, and output to assigned channel MIDI OUTs.						

Mode 1 - GM1, GM2

 Mode 1 : OMNI ON, POLY Mode 2: OMNI ON, MONO
 Mode 3 : OMNI OFF, POLY Mode 4: OMNI OFF, MONO

 ○ : Y
 X : N

15. MIDI DATA FORMAT

1. TRANSMITTED DATA

Status	Second	Third	Description	
1001 nnnn	0kkk kkkk	0000 0000	Note off	*3
1001 nnnn	0kkk kkkk	0vvv vvvv	Note on	*3
1011 nnnn	0000 0001	0vvv vvvv	Modulation	
1011 nnnn	0000 0110	0vvv vvvv	Data entry MSB	*1
1011 nnnn	0000 0111	0vvv vvvv	Master volume	
1011 nnnn	0010 0110	0vvv vvvv	Data entry LSB	*1
1011 nnnn	0100 0000	0000 0000	Damper pedal off	
1011 nnnn	0100 0000	0111 1111	Damper pedal on	
1011 nnnn	0100 0001	0000 0000	Portamento off	
1011 nnnn	0100 0001	0111 1111	Portamento on	
1011 nnnn	0ccc cccc	0vvv vvvv	Control change	*2
			cccccc = 1 thru 95	
			vvvvvv = 0 thru 127 at PEDAL	
			vvvvvv = 0 or 127 at SW	
1011 nnnn	0110 0100	0vvv vvvv	RPC LSB	*1
1011 nnnn	0110 0101	0vvv vvvv	RPC MSB	*1
1100 nnnn	0ppp pppp		Program change	
1101 nnnn	0vvv vvvv		Channel pressure	
1110 nnnn	0000 0000	0vvv vvvv	Pitch bender	
1011 nnnn	0111 1011	0000 0000	All notes off	*4
1011 nnnn	0111 1100	0000 0000	OMNI off	
1011 nnnn	0111 1111	0000 0000	POLY on	
1111 0011	0sss ssss		Song select	
1111 1000			Timing clock	
1111 1010			Start	
1111 1011			Continue	
1111 1100			Stop	
1111 1110			Active sensing	

Notes: The M8000 has 4 Transmit channels (ch A, B, C, D), these channels have each basic channel number.

When the power switch is turned ON while "cancel" and "enter" buttons are pressed together, the M8000's working MODE will be changed to SEPARATE MIDI OUT MODE.

In SEPARATE MIDI OUT MODE, each MIDI OUT sends separate MIDI data.

- *1 Up to 16 kinds of Registered paramaters can be memorized in SETTING MEMORY.
Registered paramater values can be varied from 0000H to 7F00H (7 bit reso.), for each channel.
These are transmitted only when changing setting memory, editing paramater and/or value and turning the Power ON.
- *2 Assignable PEDAL (continuous type), and assignable SWITCH (switch type).
- *3 kkkkkkk = 0 to 127
When initialized, TRANSPOSE is cleared, So kkkkkkk = 21 to 108.
TRANSPOSE can be set approximately +/- 5 octaves in each channel, and -F# to +F by master.
- *4 When CHANNEL SWITCH is turned OFF, the note OFF messages are sent for ON notes first, then this ALL NOTES OFF is transmitted.

2. RECOGNIZED RECEIVE DATA

Status	Second	Third	Description	
1000 nnnn	0kkk kkkk	0vvv vvvv	Note off	*1
1001 nnnn	0kkk kkkk	0000 0000	Note off	*1
1001 nnnn	0kkk kkkk	0vvv vvvv	Note on	*1
1011 nnnn	0ccc cccc	0vvv vvvv	Control change	
1101 nnnn	0vvv vvvv		Channel pressure	*1
1110 nnnn	0vvv vvvv	0vvv vvvv	Pitch bender	
1111 1010			Start	*2
1111 1011			Continue	*2
1111 1100			Stop	*2
1111 1110			Active sensing	*3
1111 1111			Reset	

Notes: When the power switch is turned ON while the "0" button is pressed, the M8000's working MODE will be changed to MIDI IN MODE.
This MODE disables the internal keyboard.

Voice messages described above are recognized on the Master basic channel. (in NORMAL MIDI IN MODE)

- *1 Only these messages are recognized in EXT MIDI IN MODE, and these are always recognized in ALL CHANNELS.
- *2 When these messages are recognized, the M8000 controls the internal Timing Clock and transmits these messages.
The M8000 cannot receive the external Timing Clock.
- *3 Active Sensing, Reset
Only recognized, not being transmitted.

16. SPECIFICATIONS

NUMBER OF KEYS: 88

PRESET MEMORY: 99

PERFORMANCE CONTROLS: PORTAMENTO, ARPEGGIO, SONG SELECT, TEMPO, START, STOP/CONTINUE, SYNC START, LINK

EDIT PARAMETERS: MIDI CHANNEL, PROGRAM NUMBER, TRANSPOSE, DETUNE, VOICE LIMIT, DELAY/PRIORITY, DELEAY PARAMETER, VELOCITY SENSITIVITY, PRESSURE SENSITIVITY, ZONE, ARPEGGIO, PITCH BEND, MODULATION, VOLUME, DAMPER, PORTAMENTO, PEDAL, SWITCH, EXTERNAL KEYBOARD, REGISTERED PARAMETER, VALUE

CONTROLS: **MASTER SECTION:**
VOLUME, VELOCITY SENSITIVITY, PRESSURE SENSITIVITY, KEY TRANSPOSE, PITCH BEND, MODULATION

GROUP SECTION:
BUS SLIDER (X4), BUS SELECT KEY (X4)

DATA INPUT SECTION:
KEYPAD, INCREMENT (ENTER) KEY, DECREMENT (CANCEL) KEY

DISPLAYS: MASTER DISPLAY: 3 DIGIT LED
PARAMETER DISPLAY: 2 DIGIT LED X 4

REAR PANEL: **FOOTSWITCHES:**
START/STOP, PROGRAM ADVANCE, ASSIGNABLE, PORTAMENTO, DAMPER

PEDALS:
ASSIGNABLE, VOLUME

MIDI CONNECTIONS: MIDI OUT (X4), MIDI IN, MIDI THRU, EXTERNAL MIDI IN

DIMENSIONS: (W): 57 1/16" (1448mm), (D): 16 15/16" (430mm), (H): 5 1/8" (130mm)

WEIGHT: 62 lbs. (28 kg.)

ACCESSORIES: STAND (ST-8000), RAM CARTRIDGE (RC-16), MIDI CABLE (MDC SERIES), FOOTSWITCH (F-1), EXPRESSION PEDAL (V-20X)

KAWAI

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